

COMPUTERS

Surviving a microcomputer shift

The market for the microcomputer, built around the so-called computer-on-a-chip, is moving swiftly toward the billion-dollar level predicted for the early 1980s. And the market's growing size, coupled with a major shift in its direction, is jumbling the names of the players. But while most attention is focused on big new entrants, even more instructive are the strategies and tactics of the pioneering manufacturers that have survived such wrenching change.

The business started with the hobby computer, one of the earliest applications of microprocessor technology. Dozens of small companies hopped on the hot new product, hoping to ride it to riches. But only four years after it began, the hobbyist market is drying up. "It hasn't gone away completely," says Edward E. Faber, president of ComputerLand Corp., a leading retailer of small computers, "but it is no longer growing."

Instead, such consumer giants as Texas Instruments, Mattel, and Atari are getting ready to jump into home, or personal, computers. And the established mini-computer makers are eagerly surveying the professional and business markets for their newer microprocessor-based systems.

Caught in a squeeze, many of the original hobby computer makers are seeking new capital or merger partners. By one count, some 30 companies have vanished or plunged into bankruptcy in the last year or so. "At least 90% of the products we offered two years ago are gone," says Chuck Newman, vice-president of Newman Computer Exchange Inc., a big mail-order operator in Ann Arbor, Mich.

Developing strategies. It is no big surprise that the big companies are moving in as the microcomputer reaches for a mass market. But what does surprise some observers is that two of the companies that jumped early into the hobby market—Tandy Corp. and Apple Computer Inc.—are still going strong despite the slowdown in that market. Tandy (page 104F), parent of the billion-dollar-plus Radio Shack Div., currently leads the pack in home, or personal, computers, while Apple, a

three-year-old company, is a strong No. 2. And thanks to the big companies' slowness in entering this market, both have had time to develop strategies that may help them remain leaders, even as their new competitors barge in with high volumes and low prices.

Of all the companies that owe their existence to the hobby computer phe-

nomon, only Apple has emerged so far with the strength to become a significant factor in the small-computer markets of the 1980s. "Apple is unique among start-up companies in this field," says Robert F. Wickham, a consultant who has followed the industry from its inception. "They've done a super job," says an executive of a struggling competitor. "They had the right product at the right time at the right price."

Funded by professional venture capitalists that include Arthur Rock, the highly successful backer of Scientific Data Systems Inc. and Intel Corp., Apple was able to recruit top talent from the semiconductor and computer companies near its headquarters in Cupertino, Calif. Apple has borrowed strategies from its high-technology neighbors in everything from new product development to procurement and personnel policies. But it has also become adept at consumer marketing and distribution. "This business is a fusion of the traditional computing and consumer industries," says Steven P. Jobs, the 24-year-old college dropout who helped found Apple three years ago. "We have to

adhere to laws that have been generated in both."

Accelerated demand. Until the middle of last year, Apple's growth was relatively modest. Sales jumped from \$200,000 in 1976 to \$2 million in 1977. But they shot up to more than \$15 million in 1978. "We were sure the growth rate would slow down last fall," says Apple President Michael M. Scott, "but demand accelerated instead." By February, production was five times what it had been in



Apple's Jobs and Wozniak: Sales are expected to hit \$100 million this year.

August, and Jobs is now predicting that the company will ship \$100 million worth of computers this year—putting it into a close race with Tandy for sales leadership in small computers.

But if Apple is to keep growing, it must change along with the small computer market. While Apple initially saw the hobby segment as the only viable market for small computers, its product planners focused less on the hardware tinkerer and more on the software hobbyist than most of its competitors. Its products are carried by Team Electronics and other specialty chains as well as by 300 computer stores and a few high-fidelity outlets. "We aim for a lot of substantive personal contact with the consumer," says A. C. "Mike" Markkula, Apple's board chairman and marketing vice-president.

Now Apple is launching efforts to dominate the new educational, business, and professional markets for personal computers, at the same time that it is preparing to fend off assaults on the consumer business by far larger competitors. Faber of Computerland observes that Apple is solidly entrenched in the

consumer market. "They have very high brand recognition and a quality product," he says. "Somebody will have to work to knock them off." But Apple cannot match resources with a Mattel, which, one retailer suggests, will spend up to \$25 million this year to advertise its new personal computer.

Education. On the other hand, Apple's Jobs insists that the low-cost home market will be slow to develop, because it is still not possible to sell a useful product at a price—\$500 and under—that can achieve substantial sales. So Apple's strategy, instead, is to get a strong position in the markets where price is less important than performance and software. "Until late last year," Jobs says, "none of these market segments was mature enough to be addressed separately. Now they are opening up."

Apple is moving first into education, where market researchers at Creative Strategies International expect small-computer sales to double this year to \$80 million. Apple won a key contract with the Minnesota Educational Computing Consortium last year, and in March it announced a marketing agreement with Bell & Howell Co., a major distributor of audio-visual equipment to schools.

The other big effort will come in the small-business market, which Apple defines carefully to minimize direct competition with full-fledged minicomputer systems. A professional model of the hot-selling Apple II computer, scheduled for announcement in May, will include programs for handling accounts receivable and other accounting functions for very small businesses. "We're talking about a two-man real estate office, not a \$1 million-a-year company," Markkula says.

As production rapidly builds up at Apple, the key executive will be President Mike Scott, a former semiconductor-industry executive who presides over a unique but effective management team. Although Jobs, co-founder Stephen Wozniak, and Markkula are the principal stockholders in Apple, they report to Scott on most day-to-day matters. Major policy decisions are made by consensus, often after consultation with the venture capital investors. "I'm the boss," Scott says, "by consent of the shareholders."

No cash bind. Scott puts heavy emphasis on cash management and inventory control. "We manage the speed at which we build up by the aging of our accounts receivable," he says. "If people are paying fast, that means they want the product, and we can keep building it."

Drawing on his experience in semiconductor manufacturing, Scott keeps Apple well-supplied with critical components despite widespread reports of shortages. Scott's performance has enabled Apple to grow without tapping its original \$600,000 in capital or even using its substantial bank line of credit.

This is in stark contrast with the situation facing many of the companies that got started making hobby and home computers when Apple did. According to consultant Adam Osborne, most of them grew by demanding payment in advance and using that cash to finance manufacturing. When sales started to slacken, they found themselves in a cash bind. "Most of them have no accounts receivable and a lot of accounts payable now," Osborne says. "They will need new capital in order to survive."

So far this year, Polymorphic Systems, Digital Group, and Imsai Mfg. have filed for Chapter XI bankruptcy protection, and a host of smaller companies making subsystems and components have gone out of business. "We were inadequately financed," admits Richard C. Bemis, president of Digital Group.

A dangerous shortage of capital also kept many small companies from investing in the new products required to keep up with the rapidly changing small-computer market. "Most of them missed the transition to single-board systems started by Apple and Commodore," notes Paul J. Terrell, a computer-retailing pioneer who is now marketing manager for the Data Products Div. of Exidy Inc. "The cost of building up production of a multiple-board system is enormous." Unable to compete in the price-conscious consumer market, such



Markkula of Apple: A computer for a "two-man real estate office, not a \$1 million-a-year company."

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companies as Imsai and Digital Group went after the small-business customer. "But it is a totally different business," says Steve Bishop, an Imsai vice-president. "It is less a hardware business and more a software and service business."

Capturing new markets. The pressure to invest in new products is also being felt now in the consumer market, where rapid changes in technology already are making customers dissatisfied with the power or capability of their two-year-old models. Newman, the mail-order operator, who has launched a service to buy and sell used personal computers, says: "People outgrow the early models and want to trade them in."

Apple hopes to capitalize on this trend by capturing customers of Tandy and Commodore International who want to upgrade, and by spending heavily on new products. Thomas M. Whitney, a former Hewlett-Packard Co. engineer who joined Apple last fall as head of engineering, says that the company is spending about 10% of sales on research and development centered on a few key technologies. And it is pouring more resources into software development. Already more than half of the Apple technical staff is composed of programming experts. "Most of the people we sell to now," Whitney points out, "don't want to do any programming at all." ■

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